

AB

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(21) Application number : 59-190707 (71) Applicant : TOSHIBA CORP
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(54) SEMICONDUCTOR DEVICE

(57) Abstract:

PURPOSE: To improve ion implantation inhibiting capability by constituting a MOS electrode by a metallic layer consisting of a specific metal or an alloy thereof and a metal having the crystallographic structure of a face-centered cubic lattice or a dense hexagonal lattice.

CONSTITUTION: The problems of channeling are hardly generated in a polycrystalline silicon gate composed of a diamond lattice and an aluminum gate consisting of a face-centered cubic lattice, and a high melting-point metal such as molybdenum also has many points excellent in reactivity with silicon dioxide as a gate insulating film. Arsenic ions are accelerated and implanted onto the silicon dioxide on the surface of an silicon base body while using molybdenum as a first layer, rhenium as a second layer and molybdenum as a third layer. Since the channeling of arsenic ions is inhibited effectively by a rhenium layer as a dense hexagonal lattice, an effect on MOS characteristics by the channeling of arsenic can be eliminated when the system is adopted for a MOS gate electrode.

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